

DR. HELMY: Would somebody say a word about the fracture of the head of the radius?

DR. PERCY: The head is comminuted. I don't think you have any choice but to excise it. It could be left alone if there was merely a marginal crack or a slight tilt of the head from a fracture of the neck. Remember that damage to the head of the radius results from impaction against the capitellum. Osteoarthritis will develop at the joint, and this is the reason for

excision of the head in other than minor crack fractures. The annular ligament, of course, remains intact after excision. If the fracture is through the neck and there is gross angulation, this can be corrected and held with a "K" wire. Never excise the head of the radius in a growing child. This removes the epiphysis and consequently results in a shortened radius, with development of a severe wrist deformity and all its problems.

SHORT COMMUNICATION

Postoperative Keloids—Treat or Ignore?

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KELOID was first described by Alibert¹ in 1806. Since then, an extensive literature has accumulated concerning this interesting cutaneous overgrowth of scar tissue.

Keloid is defined by Van den Brenk and Minty² as "essentially an overgrowth of granulation tissue following injury, however trivial, which tends to invade the zone of discontinuity of the skin and projects above the normal skin contour. . . Subsequently, the granulation tissue matures, vascularity is reduced and swelling and hyalinization of the whorls of collagen fibres occur." At this time the lesion has become raised, firm, shiny, whitish and the edges are often claw-like. A few telangiectatic vessels may be seen on the surface. The original scar may be widened two to ten times its original width. The lesion causes discomfort which varies from mild to severe, consisting of itching, tenderness, pain and a feeling of tightness. Mild trauma to the surface results in distinct discomfort.

It has been believed and taught that this disease is more prevalent in the black African native and his descendants, and this belief is true. However, no race is immune to keloid formation. Cosman *et al.*³ analyzed 340 keloids in 247 patients and found that 75% occurred in Negroes, 20% in Caucasians and 5% in others. The author has seen many keloids in Caucasians of different nationalities in the past 35 years.

Keloids which follow burns tend to be treated by plastic surgeons who are more interested in good cosmetic results than are general surgeons and therefore these patients receive treatment. In the same way, keloids which follow severe lacerating wounds may also be treated by plastic surgeons. Keloids which result from vaccination may or may not be treated, depending on the knowledge and interest of the general practitioner, pediatrician or public health physician who performed the vaccination. It has been my experience over many years that keloids which follow operations performed by general surgeons or gynecologists are largely ignored unless the patient becomes desperate and consults a dermatologist or plastic surgeon on his own initiative.

There are two reasons for this unfortunate state of affairs. Firstly, it may take a keloid three to six months to become large enough to be a cosmetic deformity or to produce symptoms. Surgeons commonly see their patient one or two months after operation, and a slight thickening of the scar is frequently passed off with assurance that it is of no consequence. The patient accepts this even though the keloid continues to develop and becomes ugly, itchy and tender. Secondly, the average surgeon has had little training or experience in the treatment of keloids and it is only human nature to ignore or discount the things about which we know nothing.

On discussing this with two gynecologists, I was assured that keloids are common after ce-

sarean section but that they ignore them and tell the patient to do likewise. At that time I was treating the patient of one of them, who came to me with a large, elevated, tender keloid on the lower abdomen; she had put up with it for one and a half years on the mistaken assumption that this was an act of God about which nothing could be done.

It has been my experience that the commonest site for keloids is the abdomen, especially in the mid-line, and the next most frequent sites are the upper chest and neck. They are also seen fairly commonly on the upper and lower extremities but rarely on the face. One analysis by Cosman *et al.*³ quoted an incidence of 35% on the ear and 20% on the face, but these results must follow plastic surgery to these areas which are uncommon for keloid development in dermatological practice.

One argument against treatment is that all keloids eventually fade. There is no doubt that some do, but I have seen them large and painful after 10 years, which is a long time to wait. Hypertrophic scars certainly fade, and sometimes it is difficult to differentiate between the two, but in my opinion a scar which is raised, widened, shiny, itchy and tender should be treated, or at least not ignored.

TREATMENT

Until 1963 the only successful treatment of keloids was ionizing radiation to the keloidal scar, surgical excision, or surgical excision followed by radiation. About 1963 the injection of keloids by triamcinolone was first performed and reported.

(a) *Surgical excision.*—If the lesion is a true keloid and the patient is a keloid-former, surgical excision will result in a high percentage of recurrences. Cosman *et al.*,³ writing on the surgical treatment of keloids, reported 94 recurrences and 150 successes in 244 keloids excised and followed up for one to five years. I have seen keloid scars which have been carefully excised recur two or three times in the same patient. If the excised lesion was a hypertrophic scar and not a keloid, the results of excision and careful suturing are more likely to be good.

(b) *Surgical excision followed by radiation.*—Until 1963 this was certainly the treatment of choice and the recurrence rate was relatively low. To be effective, radiation must be fairly intense; this may produce undesirable sequelae in the skin and may also have undesirable effects on underlying structures, particularly the thyroid, abdominal viscera, ovaries and, in children, the epiphyses.² There are some cases for which

this is the treatment of choice, but the surgery and postoperative radiation must be carefully performed.

(c) *Radiation only.*—Keloids which are young (under 2 years) respond better to radiation than do old keloids. Carefully performed, this may be the treatment of choice, but the undesirable sequelae described above must always be considered carefully. The technique of radiation will not be discussed here. It should be supervised by someone with special training in radiotherapy.

(d) *Injection of keloids with injectable steroid.*—Before 1963 many attempts had been made to influence keloids with ACTH and cortisone, orally and by injection, with little or no success.

About that time, a sudden interest was aroused by the results following the use of injectable triamcinolone. One of the first reports was that of Murray,⁴ who attempted to prevent recurrence of keloids after their incision by injecting the edges of the wound with triamcinolone acetate suspension. In 1965, Maguire⁵ reported the intralesional injection of huge keloids on the side of the neck of a 9-year-old Negro girl. These had previously recurred after surgical excision. The lesions flattened gradually after two-and-a-half years of treatment and had not recurred two years later.

This and other favourable results stimulated interest in this type of treatment, and today it is very widely used by dermatologists and by some plastic surgeons. As far as I am aware, it has not been taken advantage of by other specialists or by general practitioners; indeed many have not heard of it.

TECHNIQUE AND RESULTS OF INJECTION

The following technique has been found fairly easy and effective. Triamcinolone acetate* or diacetate† suspension, 10 mg. per ml., is injected using a 25-gauge needle and a syringe with a good finger grip. Occasionally the strength of the solution must be increased to 15 mg. per ml. if the lesion is slow in responding, or reduced to 5 mg. per ml. if the keloid is thin and atrophy of the skin would be objectionable. I have found that any atrophy of normal skin which may occur adjacent to the keloid always disappears with time. The reason for the good finger grip is that a keloid is so dense that it is extremely difficult to inject even the smallest amount the first time or two. Usually not more than 0.1 or at most 0.2 ml. can be injected at one time, and this should be into the keloid and not below or

*Kenalog Injectable (Squibb).

†Aristocort Injectable (Lederle).

lateral to it. Multiple injections are given on one occasion, about 0.5 cm. apart. Some patients can tolerate only two or three such injections at one time, others as many as 10 or 15. The discomfort is due to the pressure and stretching, so that addition of local anesthetic is of little or no value. This procedure is repeated every three weeks. Frequently, after the first or second set of injections, the tenderness and itching disappear and the lesion feels softer. It is now much easier to inject. The older and firmer the keloid, the slower the result. Frequently, three or four sets of injections are all that is necessary, but occasionally the keloid will require eight or more. In four years I have not seen a patient in whom there was not improvement following injection, but in some the results are much better than in others. The scar remains the width of the keloid but is flat, soft and free of annoying symptoms. This is an easy office procedure even in an apprehensive adult patient, but it is occasionally impossible to carry out in a child.

Summary Keloids can follow any injury to the skin and are common after surgical operations, burns, lacerating wounds and vaccination.

Negroes are more subject to keloids, but true keloids are seen frequently in Caucasians. There is

often a family tendency, and a patient who has developed one keloid will commonly develop more after trauma.

Postoperative keloids are frequently untreated and become a source of great discomfort and disfigurement. Usually the general surgeon and the gynecologist are not interested in keloids or their treatment, and give their patients the impression that keloids are of no consequence and that they should forget about them.

Keloids most commonly occur in areas exposed to stretching, such as the neck, chest and abdomen. Surgeons who operate on patients in these areas would be well advised to see their patients several months after operation or to warn them that a keloid may develop. If keloids do develop, then treatment is called for.

Four methods of treatment are available—surgical excision, surgical excision followed by radiation, radiation alone or repeated injection of the keloid with triamcinolone suspension. The last-mentioned is a safe and effective office procedure to improve the appearance of, and to allay the symptoms from, these ugly and annoying tumours.

REFERENCES

1. ALIBERT, J. L. M.: Description des maladies de la peau, Barrois l'aîné et fils, Paris, 1806, p. 113.
2. VAN DEN BRECK, H. A. S. AND MINTY, C. C. J.: *Brit. J. Surg.*, 47: 595, 1960.
3. COSMAN, B. et al.: *Plast. Reconstr. Surg.*, 27: 335, 1961.
4. MURRAY, R. D.: *Ibid.*, 31: 275, 1963.
5. MAGUIRE, H. C., JR.: *J. A. M. A.*, 192: 325, 1965.

CORRECTION: PROPRANOLOL IN THE PROPHYLACTIC TREATMENT OF ANGINA PECTORIS

In the original article "Propranolol in the Prophylactic Treatment of Angina Pectoris" by H. F. Mizgala, A. S. Khan and R. O. Davies, published in the issue of April 26 (*Canad. Med. Ass. J.*, 100: 756, 1969), the following résumé should be substituted for the one appearing on page 763:

Résumé Au cours d'une étude à double insu par permutation chez 15 sujets atteints d'une forme grave d'angine de poitrine, on a administré des doses quotidiennes de 160 et de 320 mg de propranolol. Dans la plupart des cas, on a observé une diminution de la gravité et du nombre des attaques angineuses et une augmentation de la tolérance à l'exercice.

Dans le groupe traité avec 160 mg de propranolol, un sujet a été complètement soulagé de ses symptômes et dans l'ensemble, la consommation de nitroglycérine a connu une baisse moyenne de 48 pour cent. De plus, trois des six sujets qui ont été soumis à des essais de tolérance à l'exercice sur

tapis roulant ont vu augmenter leur tolérance à l'effort de façon appréciable.

A la dose quotidienne de 320 mg, par ailleurs, un autre sujet a également été complètement soulagé des symptômes angineux; les prises de nitroglycérine ont été de nouveau abaissées chez cinq malades et la tolérance à l'exercice a augmenté dans cinq cas sur six.

Le traitement au propranolol n'a dans aucun cas aggravé les symptômes angineux, mais cependant, deux sujets n'ont pas été améliorés. Seule l'épreuve thérapeutique permet de prévoir quels malades répondront au traitement. Les effets secondaires indésirables ont été bénins et bien tolérés. Le propranolol est susceptible de précipiter une insuffisance cardiaque globale dans certains cas. On doit l'administrer uniquement aux sujets digitalisés. Le médicament est contre-indiqué en présence d'antécédents d'asthme, de bradycardie ou de bloc cardiaque important. Le mécanisme d'action du propranolol paraît complexe. Bien qu'il soit probablement relié à une diminution des besoins du myocarde en oxygène, le propranolol doit occasionnellement ses effets à ses propriétés anti-arythmiques et il est également susceptible d'améliorer la circulation coronarienne.